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EXAMINER	
THOMPSON, JAMES A	
ART UNIT	**PAPER NUMBER**
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/670,012	NAKA, TAKAFUMI	
	Examiner	Art Unit	
	James A Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1 December 2004, 17 September 2004, 21 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Arguments Filed 21 July 2004

1. Applicant's arguments, see page 12, line 7-21, filed 21 July 2004, with respect to the drawings and the specification have been fully considered and are persuasive. The amendments to the drawings and the specification have been noted. The objection to the drawings and the specification in items 2-4 of the first office action, dated 15 April 2004, have been withdrawn.

2. Applicant's arguments, see pages 13-15, filed 21 July 2004, have been fully considered but they are not persuasive.

Despite Applicant's contention on page 13, lines 18-25, Aoyama does not teach away from the desired fundamental gradation curve K5 coming into contact with the original fundamental curve K1. Aoyama teaches weighting such that K5 specifically matches significant portions of curves K2 and K4 (see figure 8 of Aoyama), but this in no way teaches away from K5 matching any portion of K1. In fact, the curves K2 and K4 are dependent upon and calculated from K1, as shown in figures 5-7 of Aoyama and discussed in detail in column 9, line 46 to column 10, line 54 of Aoyama. Further, the passage cited on page 6, lines 1-5 of the first office action, dated 15 April 2004, states that the desired gradation curve is obtained from the fundamental gradation curve (column 8, lines 16-19 of Aoyama). The operations performed on the original fundamental curve (K1) are rotation to obtain K2 (figure 5 of Aoyama),

translation to obtain K3 (figure 6 of Aoyama), rotation to obtain K4 (figure 7 of Aoyama), and weighting and adding of K2 and K4 to obtain K5 (figure 8 of Aoyama). In fact, if one compares figure 5 and figure 8 of Aoyama, it is clear that K1 is simply a rotated version of K2 and would intersect with K5 if K1 and K5 were graphed together. Therefore, K5 does indeed match a part of K1.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., matching the desired fundamental gradation curve K5 with the original fundamental gradation curve K1, as argued on page 13, lines 19-21 of Applicant's arguments filed 21 July 2004) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claims 1, 5 and 10 recite that "at least a part of the present image signal level curve matches a part of the reference signal level curve."

On page 14, lines 1-3, Applicant argues that "this feature of the disclosed invention is particularly beneficial because it prevents excessive adjustment of the image signal level." However, Applicant has not demonstrated how the claims, as recited, patentably distinguish over the prior art.

Arguments Filed 17 September 2004

3. Applicant's arguments filed 17 September 2004 have been fully considered but they are not persuasive. While the amendments to claims 1 and 10 have overcome the rejections set

forth in the previous office action, dated 15 April 2004, of claims 1, 10 and 13 under 35 U.S.C. §102(b) as being anticipated by Aoyama (US Patent 5,796,865), new grounds of rejections that are necessitated by the amendments are given below.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama (US Patent 5,796,865) in view of Kimura (US Patent 5,721,626).

The image reading device of claim 1 performs the steps of the method of claim 10. Claims 1 and 10 are therefore discussed together.

Regarding claims 1 and 10: Aoyama discloses an image reading device (figure 2 and figure 3 of Aoyama). Figure 1 is the image gradation correction apparatus, which is part of the image processing unit (figure 3(28) of Aoyama) of the image read-out apparatus (figure 3 of Aoyama) (column 9, lines 24-31 of Aoyama). Figure 2 is an image recording apparatus (column 8, lines 26-27 of Aoyama), which is a part of the overall embodiment of the invention taught by Aoyama (column 8, lines 23-27 of Aoyama).

Said image reading device comprises an image reading unit (figure 2 of Aoyama) comprising a plurality of optical reading sensors aligned in a row (column 8, lines 32-35 of Aoyama). The optical sensors are a sheet of stimulable phosphors (figure 2(14) and column 8, lines 32-35 of Aoyama). A plurality of optical reading sensors (stimulable phosphors) are aligned along each row of said sheet in order to form said sheet. Said image reading unit outputs an image signal based on an image read by the plurality of optical reading sensors (column 8, lines 61-65 of Aoyama).

Said image reading device further comprises a characteristic storage unit (figure 1(1,2) of Aoyama) that stores the characteristic of said image reading unit in the form of a reference image signal level curve (column 7, lines 35-40 of Aoyama) and one of a predetermined coefficient and a threshold level curve (column 7, lines 45-54 of Aoyama), the reference image signal level curve being obtained by correcting an image signal curve outputted by said reading unit when the optical reading sensors reads an image of a predetermined white reference member at a factory so that a peak value of the image signal curve matches a predetermined maximum readable range (column 7, lines 46-49 of Aoyama), and the threshold level curve being obtained by multiplying the reference image signal level curve by the predetermined coefficient (column 7, lines 49-54 of Aoyama). A fundamental gradation curve is stored in the gradation curve storage means (figure 1(1) of Aoyama) (column 7, lines 35-38 of Aoyama). Said fundamental gradation curve relates the output density value with the input image signal value (column 9, lines 34-42 of Aoyama). Relating the density value and the input image signal inherently creates an image

signal level curve. Said image signal level curve is a reference image signal level curve since the fundamental gradation curve is used as a reference curve. The enlargement and reduction means (figure 1(2) of Aoyama) uses a factor to enlarge the fundamental gradation curve (column 7, lines 46-54 of Aoyama), thus creating a threshold level curve. The fundamental gradation curves, since they serve as a reference for the device (column 7, lines 38-39 of Aoyama), would inherently be set when the device is produced since they are simply stored on the device and used (column 7, lines 35-39 of Aoyama). The reference gradation curves are not created by user operation of the device. The fundamental gradation curve storage means (figure 1(1) of Aoyama) and the enlargement and reduction means (figure 1(2) of Aoyama) comprise a characteristic storage unit since they are simply the means by which said unit functions.

Said image reading device further comprises a correction coefficient calculator (figure 1(5) of Aoyama) that produces a corrected image signal level curve (figure 8(K5) of Aoyama) by determining a correction coefficient (column 8, lines 6-11 of Aoyama) which matches at least a part of the present image signal level curve with a part of the reference signal level curve to produce a corrected image signal level curve (column 8, lines 16-19 of Aoyama).

Said image reading device further comprises a correction output unit (figure 3(30) of Aoyama) that produces a binary output signal of the corrected image signal level curve by comparing the corrected image signal level curve with either the threshold level curve stored in said characteristic storage unit or a threshold level curve obtained by multiplying the reference

image signal level curve by the predetermined coefficient (column 12, lines 17-24 of Aoyama). After the gradation curve has been processed, the image can be output using a laser printer (column 12, lines 17-24 of Aoyama). This would inherently require some form of halftoning since halftoning is the manner in which laser printers obtain an output signal. Halftoning inherently involves some form of comparison with a threshold level.

Aoyama does not disclose expressly that said correction coefficient calculator produces said corrected image signal level curve by incrementally increasing said correction coefficient until, when the present image signal level curve is multiplied by said correction coefficient, at least a part of the present image signal level curve matches a part of the reference signal level curve.

Kimura discloses incrementally increasing the gain of an image signal (column 3, lines 6-13 of Kimura).

Aoyama and Kimura are combinable because they are from the same field of endeavor, namely digital image data correction and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incrementally increase a gain coefficient, as taught by Kimura, said gain coefficient being the correction coefficient taught by Aoyama, so that at least a part of the present image signal level curve is matched with a part of the reference signal level curve to produce a corrected image signal level curve, as taught by Aoyama. The motivation for doing so would have been to lower costs by having a plurality of pre-set gains that can be utilized (column 3, lines 9-11 of Kimura). Therefore, it would

have been obvious to combine Kimura with Aoyama to obtain the invention as specified in claims 1 and 10.

Regarding claim 13: Aoyama discloses that the image reading unit (figure 2 of Aoyama) comprises a plurality of optical reading sensors aligned in a row (column 8, lines 32-35 of Aoyama). The optical sensors are a sheet of stimulable phosphors (figure 2(14) and column 8, lines 32-35 of Aoyama). A plurality of optical reading sensors (stimulable phosphors) are aligned along each row of said sheet in order to form said sheet. Said image reading unit outputs an image signal based on an image read by the plurality of optical reading sensors (column 8, lines 61-65 of Aoyama).

6. Claims 2-8 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama (US Patent 5,796,865) in view of Kimura (US Patent 5,721,626) and Lazzouni (US Patent 5,652,412).

Claims 2, 6 and 11 further limit claims 1, 5 and 10, respectively. Claims 2, 6 and 11 disclose essentially the same limitations. Claims 2, 6 and 11 are therefore discussed together.

Claims 3, 7 and 12 further limit claims 1, 5 and 10, respectively. Claims 3, 7 and 12 disclose essentially the same limitations. Claims 3, 7 and 12 are therefore discussed together.

Claims 4 and 8 further limit claims 1 and 5, respectively. Claims 4 and 8 disclose essentially the same limitations. Claims 4 and 8 are therefore discussed together.

Regarding claim 5: Claim 1 contains most of the elements of claim 5. Therefore, the arguments regarding claim 1 are incorporated herein. Aoyama further discloses printing means

(figure 3(30) of Aoyama) that prints an image on an image recording medium based on the binary output signal (column 12, lines 21-24 of Aoyama).

Aoyama in view of Kimura does not disclose expressly a white board on which an image is drawn.

Lazzouni discloses a white board (figure 1(14) of Lazzouni) on which an image is drawn (column 6, lines 35-40 of Lazzouni).

Aoyama in view of Kimura is combinable with Lazzouni because they are from the same field of endeavor, namely digital image control and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the writing instrument, which inputs on the encoded writing medium (figure 1(14) of Lazzouni), as the input device instead of the image input device (figure 2 of Aoyama) specifically shown in Aoyama. The motivation for doing so would have been to have the capability of making a digital image via freehand drawings (column 2, lines 39-41 of Lazzouni). Therefore, it would have been obvious to combine Lazzouni with Aoyama in view of Kimura to obtain the invention as specified in claim 5.

Regarding claims 2, 6 and 11: Aoyama discloses that the correction coefficient calculator (figure 1(5) of Aoyama) comprises comparing means (figure 1(5) of Aoyama) that compares the present image signal level curve with the reference image signal level curve stored in the characteristic storage unit (figure 4; figure 8; and column 10, lines 41-50 of Aoyama). A desired gradation curve is obtained by correcting the fundamental gradation curve (figure 4 and column 9, lines 43-45 of Aoyama). The fundamental gradation curve is first enlarged or reduced (column 9, lines 46-47 and lines 55-57 of Aoyama).

The resultant curve is used in a comparison with the desired curve and corrected to obtain said desired curve (column 10, lines 41-50 of Aoyama).

Said correction coefficient calculator further comprises determining means (figure 1(5) of Aoyama) that determines a correction coefficient required to match at least the portion of the present image signal level curve with the portion of the reference signal level curve (figure 8 and column 10, lines 41-50 of Aoyama).

Aoyama in view of Kimura does not disclose expressly that said correction coefficient calculator further comprises reading means that reads an image from a white reference surface provided at a reading position to obtain a present image signal level curve before image data is actually retrieved using the reading unit.

Lazzouni discloses reading means (figure 3(50-70) of Lazzouni) that reads an image from a white reference surface (figure 3(14) of Lazzouni) (column 5, lines 34-42 of Lazzouni) provided at a reading position to obtain a present image signal level curve before image data is actually retrieved (column 6, lines 2-7 and lines 35-40 of Lazzouni). The reading means (figure 3(50-70) of Lazzouni) of the pen (figure 3(10) of Lazzouni) reads pixel patterns before the pen writes in order to determine a relative position (column 6, lines 2-7 of Lazzouni). This allows a continuous record of the pen's path to be kept so that the created image can be stored (column 6, lines 35-40 of Lazzouni).

Aoyama in view of Kimura is combinable with Lazzouni because they are from the same field of endeavor, namely digital image control and processing. At the time of the invention, it

would have been obvious to a person of ordinary skill in the art to use reading means of the pen as part of the correction coefficient calculator so that said correction coefficient calculator can read an image from the white reference surface, also taught by Lazzouni, provided at a reading position to obtain a present image signal level curve before image data is actually retrieved using the reading unit. The motivation for doing so would have been to verify the position of the reading elements and verify the pixel patterns at said position (column 6, lines 2-7 of Lazzouni). Therefore, it would have been obvious to combine Lazzouni with Aoyama in view of Kimura to obtain the invention as specified in claims 2, 6 and 11.

Regarding claim 3, 7 and 12: Aoyama discloses that said correction output unit comprises outputting means (figure 3(30) of Aoyama) that outputs a corrected image signal level curve (column 12, lines 17-24 of Aoyama) by multiplying the correction coefficient (weighting factor) by the present signal level curve (figures 8-10 and column 11, lines 13-17 of Aoyama).

Regarding claims 4 and 8: Aoyama discloses using a plurality of optical image sensors (figure 2(14); and column 8, lines 32-35 and lines 61-65 of Aoyama).

Aoyama in view of Kimura does not disclose expressly that said optical image sensors comprise contact image sensors.

Lazzouni discloses optical image sensors (figure 3(70) of Lazzouni) that comprise contact image sensors (column 5, lines 49-56 of Lazzouni). A detector array (figure 3(70) of Lazzouni) is used to detect the absolute and relative position of the pen (column 5, lines 49-56 of Lazzouni) as the pen writes (column 5, lines 57-63 of Lazzouni).

Aoyama in view of Kimura is combinable with Lazzouni because they are from the same field of endeavor, namely digital image control and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the writing instrument as disclosed by Lazzouni as the image input device instead of the image input device (figure 2 of Aoyama) specifically shown in Aoyama. The motivation for doing so would have been to have the capability of making a digital image via freehand drawings (column 2, lines 39-41 of Lazzouni). Therefore, it would have been obvious to combine Lazzouni with Aoyama in view of Kimura to obtain the invention as specified in claims 4 and 8.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama (US Patent 5,796,865) in view of Kimura (US Patent 5,721,626), Lazzouni (US Patent 5,652,412), and Komagine (US Patent 5,479,585).

Regarding claim 9: Aoyama discloses outputting an image (column 12, lines 17-24 of Aoyama).

Aoyama in view of Kimura does not disclose expressly that the white board comprises an endless white sheet on which the image is to be drawn; a pair of roller members rotatable about their axes for supporting and feeding the endless white sheet, the endless white sheet being mounted on the pair of roller members; and a drive motor drivingly connected to at least one of the roller members, the image reading unit being positioned in confrontation with at one of the roller members.

Lazzouni discloses using a white board comprising a white sheet (figure 3(14) of Lazzouni) on which an image is to be drawn (column 6, lines 35-42 of Lazzouni).

Aoyama in view of Kimura is combinable with Lazzouni because they are from the same field of endeavor, namely digital image control and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the electronic pen and encoded white sheet, as taught by Lazzouni, as an input device for the apparatus taught by Aoyama. The motivation for doing so would have been to have the capability of making a digital image via freehand drawings (column 2, lines 39-41 of Lazzouni). Therefore, it would have been obvious to combine Lazzouni with Aoyama in view of Kimura.

Aoyama in view of Kimura and Lazzouni does not disclose expressly that said white sheet is an endless white sheet and the white board further comprises a pair of roller members rotatable about their axes for supporting and feeding the endless white sheet, the endless white sheet being mounted on the pair of roller members; and a drive motor drivingly connected to at least one of the roller members, the image reading unit being positioned in confrontation with at one of the roller members.

Komagine discloses that said white sheet is an endless white sheet (figure 1(64) and column 2, line 65 to column 3, line 4 of Komagine) and the white board further comprises a pair of roller members (figure 1(42,44) of Komagine) rotatable about their axes for supporting and feeding the endless white sheet (column 2, lines 21-25 of Komagine), the endless white sheet being mounted on the pair of roller members (figure 1 and column 2, lines 50-53 of Komagine); and a drive motor (figure 1(20) of Komagine) drivingly connected to at least one of the roller members (column 2, lines 6-9 of Komagine), an image writing unit (figure 1(48,50) of Komagine) being positioned in confrontation

with at least one of the roller members (column 2, lines 31-34 of Komagine).

Aoyama in view of Kimura and Lazzouni is combinable with Komagine because they are from the same field of endeavor, namely digital image control and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the device (figure 1 of Komagine) of Komagine to supply the encoded white sheet for the apparatus of Aoyama in view of Lazzouni. Instead of the image writing unit of Komagine, the image reading unit of Aoyama in view of Lazzouni would be positioned in confrontation with at least one of the roller members. The motivation for doing so would have been to provide an endless amount of the encoded sheet for whatever size is needed for the image (column 1, lines 38-43 of Komagine). Therefore, it would have been obvious to combine Komagine with Aoyama in view of Kimura and Lazzouni to obtain the invention as specified in claim 9.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will

expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
07 February 2005

THOMAS D. LEE
PRIMARY EXAMINER